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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Richard Munro Dorward

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EXAMINER

BELLO, AGUSTIN

ART UNIT

PAPER NUMBER

2613

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/550,418	Applicant(s) DORWARD, RICHARD MUNRO	
	Examiner Agustin Bello	Art Unit 2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 33-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 33-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 33-35, 38, and 43-48 are rejected under 35 U.S.C. 102(e) as being anticipated by Pitchforth (U.S. Patent Application Publication No. 2004/0004709).

Regarding claim 33, Pitchforth teaches connecting to the first point of the optical fiber cable an optical component (reference numeral 102 in Figure 1); connecting to the second point of the optical fiber cable an optical time domain reflectometer (OTDR) operative for emitting OTDR signals along the optical fiber cable towards the optical component (reference numeral 112 in Figure 2; paragraph [0027]), introducing at least one optical signal into the optical fiber cable at the first point thereof (reference numeral 102 in Figure 1) after a break in the optical fiber is suspected (paragraphs [0032] – [0034]); using the optical fiber cable to carry the at least one optical signal to the second point thereof (reference numeral 116 in Figure 1); and configuring the OTDR to detect the at least one optical signal from the optical fiber cable (reference numeral 204 in Figure 2) and to prevent emission of the OTDR signals at any time during which detection of the at least one optical signal occurs (paragraph [0032, 0034]; i.e. OTDR is not initiated until a break is suspected which is determined by a loss of signal).

Regarding claim 34, Pitchforth teaches the step of configuring the optical component to be an optical receiver (as indicated by the bi-directional arrows at the input/output of reference numeral 102 in Figure 1), and in which the introducing step is performed by arranging the optical receiver to introduce the at least one optical signal into the optical fiber cable.

Regarding claim 35, Pitchforth teaches that the arranging step is performed by configuring the optical receiver with a transmitting device, and the step of transmitting the at least one optical signal from the transmitting device into the optical fiber cable (as indicated by the bi-directional arrows at the input/output of reference numeral 102 in Figure 1).

Regarding claim 38, Pitchforth teaches that introducing step is performed by superimposing a plurality of optical signals onto the optical fiber cable (paragraph [0025]).

Regarding claim 43, Pitchforth teaches the step of configuring the OTDR to be a transmitter operated to emit the OTDR signals (paragraph [0055]).

Regarding claim 44, Pitchforth teaches the step of disabling the OTDR transmitter to prevent emission of the OTDR signals at any time during which detection of the at least one optical signal occurs (i.e. during normal mode paragraph [0027]).

Regarding claim 45, Pitchforth teaches the step of configuring the OTDR to be a detector operated to detect the at least one optical signal from the optical fiber cable (reference numeral 204 in Figure 2).

Regarding claim 46, Pitchforth teaches the step of configuring the OTDR detector to be able to detect the at least one optical signal in a wavelength range of approximately 1250 nm to approximately 1700 nm (inherent).

Regarding claims 47 and 48, Pitchforth teaches the step of configuring the OTDR detector to be used to receive echoes of the OTDR signals (inherent in OTDR).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pitchforth in view of Shigematsu (U.S. Patent No. 5,214,728).

Regarding claims 36 and 37, Pitchforth teaches the step of configuring the optical component to be a receive optical amplifier (reference numeral 106 in Figure 1), and in which the introducing step is performed by arranging the receive amplifier to introduce the at least one optical signal into the optical fiber cable (inherent function of an optical amplifier). Pitchforth differs from the claimed invention in that Pitchforth fails to specifically teach that optical component comprises a receive erbium doped fiber amplifier (EDFA), where the arranging step is performed by controlling isolation of an input isolator of the receive EDFA such that, in the absence of an input signal thereto, the at least one optical signal in the form of amplified spontaneous emission noise escapes from an input of the receive EDFA and is introduced into the optical fiber cable. However, Shigematsu teaches that the use of EDFA with an input isolator in optical communication system is well known in the art. Furthermore, there being no physical difference between what is claimed and what is taught by Shigematsu, one skilled in the art would clearly have had the ability to arrange the EDFA in order to control the isolation of the

input isolator as claimed in order to introduce a signal into the fiber in the form of ASE.

Furthermore, Pitchforth teaches that the OTDR logic is implemented at each of the amplifier sites, thereby suggesting that the amplifier is capable of being configured as claimed. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to employ the isolator EDFA combination as taught by Shigematsu in the system of Pitchforth.

5. Claims 39-42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pitchforth.

Regarding claims 39-42, Pitchforth teaches multiplexing of a plurality of different wavelength optical signals onto a fiber, but differs from the claimed invention in that it fails to specifically teach that the multiplexed optical signals are pilot signals at wavelength different from the traffic signal wavelengths or optical service channels or a plurality of OSC signals. However, Official Notice is given that multiplexing of a plurality of pilot signals at wavelength different from that of traffic signals onto an optical fiber is also well known in the art as is multiplexing a plurality of optical service channels onto a fiber. Furthermore, Pitchforth at least teaches the use of OSC signals, thereby suggesting that a plurality of such signals could be used. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to multiplex a plurality of pilot signals at wavelength different from that of traffic signals or optical service channels onto an optical fiber as would multiplexing a plurality of optical service channels onto a fiber.

Response to Arguments

6. Applicant's arguments filed 06/04/08 have been fully considered but they are not persuasive. The applicant argues that the amended claim language distinguishes the instant application from the cited prior art to Pitchforth. However, the examiner disagrees. As noted

above, Pitchforth clearly meets the newly added limitation by disclosing detection of a loss of signal between two points in the system.

Furthermore, as noted in paragraphs [0032] - [0034], communication of channels not affected by the break is continued, thereby meeting applicant's claim to introducing at least one optical signal into the optical fiber at the first point thereof after a break in the fiber is suspected. It also appears that the only optical signals that are prevented from being transmitted are the control and management traffic.

Moreover, given applicant's recitation of a plurality of "at least one optical signal," the at least one optical signal transmitted by any one of the elements 102 can be distinct from the at least one optical signal detected by the OTDR from the optical cable.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Agustin Bello/
Primary Examiner, Art Unit 2613